Oxygen uptake rates in a typical gill-breather

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## Practical 1: Assessment

## BSX-2030 Integrated Zoology

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## Task 1

Task 1: Present the data in 4 tables i.e. Tables 6, 7, 8 and 9 from the practical handout. Each table needs a caption. Table titles go above the table

### Table 6: calculation of Oxygen uptake for crabs in two aqueous conditions

|  | | **A** | **B** | **C** | **D** | **E** |
| --- | --- | --- | --- | --- | --- | --- |
| **Crab Name** | **Treatment** | **Difference in pO2 (mmHg)** | **Time between measurements (min)** | **pO2 difference in water (mmHg)\*** | **C vol of water (ml)** | **D ()  ml-1 O2 h-1** |
| A1 | Submerged | 13.0 | 19 | 5.10e-04 | 0.41 | 1.30 |
| A2 | Submerged | 14.0 | 19 | 5.50e-04 | 0.44 | 1.40 |
| A1 | Resubmerged | 15.0 | 15 | 5.90e-04 | 0.47 | 1.90 |
| A2 | Resubmerged | 7.8 | 15 | 3.00e-04 | 0.24 | 0.97 |
| Daily air quality measurements in New York May to September 1973. | | | | | | |
| \*value from column A solubility coefficient (3.87 10-5) | | | | | | |

|  | | **A** | **B** | **C** | **D** | **E** |
| --- | --- | --- | --- | --- | --- | --- |
| **Crab Name** | **Treatment** | **Difference in pO2 (mmHg)** | **Time between measurements (min)** | **pO2 difference in water (mmHg)\*** | **C vol of water (ml)** | **D ()  ml-1 O2 h-1** |
| A1 | Submerged | 13.0 | 19 | 0.00051 | 0.41 | 1.30 |
| A2 | Submerged | 14.0 | 19 | 0.00055 | 0.44 | 1.40 |
| A1 | Resubmerged | 15.0 | 15 | 0.00059 | 0.47 | 1.90 |
| A2 | Resubmerged | 7.8 | 15 | 0.00030 | 0.24 | 0.97 |
| Daily air quality measurements in New York May to September 1973. | | | | | | |
| \*value from column A solubility coefficient (3.87 10-5) | | | | | | |

### Table 7

|  | | **A** | **B** | **C** | **D** |
| --- | --- | --- | --- | --- | --- |
| **Crab Name** | **Treatment** | **Difference in *p*O2 *mmHg*** | **R x T (62.36 x 288.15)** | **x vol of air (litres)*mmol O*2** | **C x (*mmol O*2 h-1)** |
| A1 | Aerial Exposure | 0.9 | 18,000 | 0.000050 | 0.000049 |
| A2 | Aerial Exposure | -1.0 | 18,000 | -0.000056 | -0.000055 |
| Crabs in air | | | | | |

### Table 8

|  | | **A** | **B** | **C** |
| --- | --- | --- | --- | --- |
| **Crab Name** | **Treatment** | **Oxygen uptake  ml-1 O2 h-1** | **A / body mass in KG  (ml O2 KG-1 h-1)1** | **B / 22.41  (mmol O2 KG-1 h-1)** |
| A1 | Submerged | 1.30 | 48.32 | 2.16 |
| A2 | Submerged | 1.40 | 50.42 | 2.25 |
| A1 | Resubmerged | 1.88 | 69.95 | 3.12 |
| A2 | Resubmerged | 0.97 | 34.83 | 1.55 |
| Some stuff | | | | |
| 1Calculated as Oxygen uptake / body mass in kg | | | | |